

12-2017

Biology Newsletter: December 2017

Bernardo Ortega

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Ortega, Bernardo, "Biology Newsletter: December 2017" (2017). *Biology Newsletters*. 18.
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The Department of Biology at the College at Brockport, State University of New York

The State of the Department

The Biology Department would like to send a warm welcome our new first-year students and a welcome back to our returning students! The College certainly doesn't look the same as when you left – and your trips to Lennon Hall now require navigating puddles and fences. But, I am happy to report that that should be getting easier real soon and the campus will look beautiful when it is all said and done; in the meantime, we just have to be patient.

Please join us in welcoming Ms. Sarah Bolton to the Department! She has taken over responsibility of the A&P laboratory sections so if A&P is on your plan of study, you are sure to be meeting her soon. You may be wondering where Dr. Hing and Dr. Pelletier have been – both faculty members are taking a well-deserved research sabbatical. Dr. Sia has also taken an administrative position, so the hallways are a bit quieter on the second floor and in the basement. Rest assured, Dr. Hing will be back

teaching BIO202 and Dr. Pelletier will return as the Interim Department Chair in January.

I want to encourage you all, as you think about your academic path to graduation, to consider enriching your time here with extracurricular experiences that take you outside of your comfort zone. Get involved! Do a community service project, join a club, become a peer mentor, study abroad or join a research laboratory. Get to know your professors, let them mentor you, and give back to your Brockport Community. For our graduates, these experiences have oftentimes been the most memorable ones.

I wish you all a successful academic year,

Dr. Laurie B. Cook
Interim Chair
(Fall '17)



Volume 8, Issue 1

December 2017

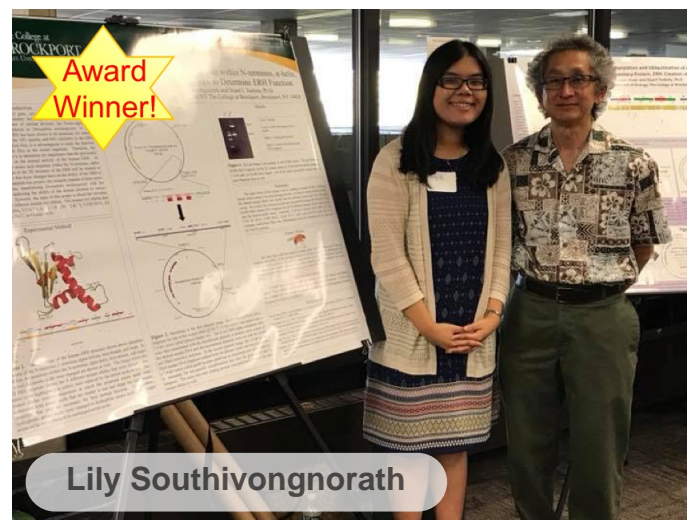
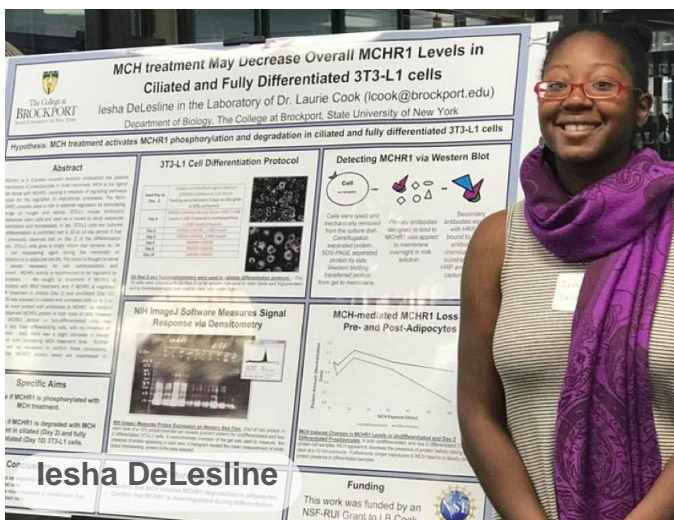
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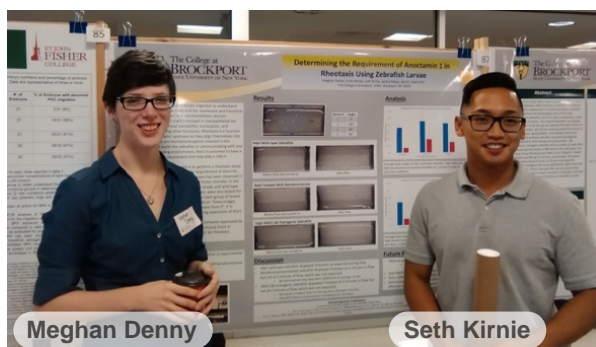
Have a wonderful holiday season, We look forward to a happy and successful 2018

Biology Department Represented at the 2017 Brockport Summer Undergraduate Research Poster Session



Brockport Biology Students at the 2017 RAS meeting

The Rochester Academy of Science Meeting was held this year on November 11 at St. John Fisher College. Congratulations to all students representing our department.



Meghan Denny

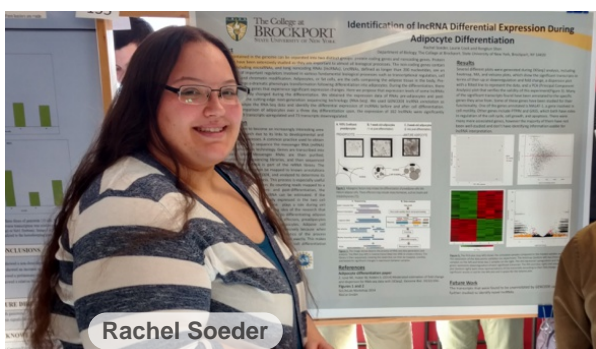
Seth Kirnie



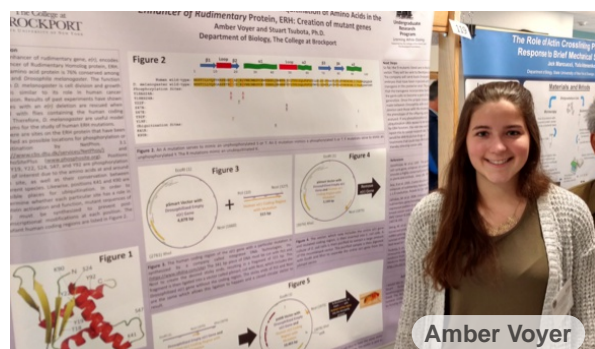
Gabriela Mercurio

Conner Kobus

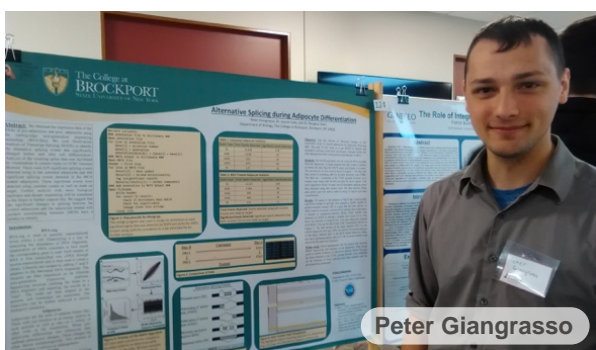
Tricia Cooke



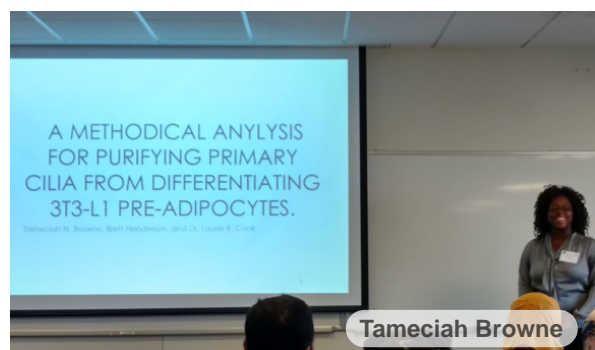
Rachel Soeder



Amber Voyser



Peter Giangrasso



Tameciah Browne

Help Support the Next Generation of Biology Students

Dear Alumni,

We are asking you to contribute to our Department and to help us provide research experiences for students. A research experience contributes to undergraduate and graduate education by providing hands-on experience with state of the art equipment, and an opportunity to work with faculty mentors directly. These skills are fundamental to success, and the research experience provides a competitive edge. Biology faculty are

active, working with students, and presenting results at scientific meetings with students.

We ask that you consider donating to The College at Brockport, and specifically to the Biology Department. Your support will help us to help students. Donations of any amount will help us to provide significant and meaningful research experiences for student. Please consider helping to support our students' research opportunities.

For more information please contact Dr. Laurie Cook (lcook@brockport.edu) or by making an online monetary gift by visiting the College's Giving Website below, making sure that your gift is designated for use by The Biology Department in the appropriate box.

<http://alumni.brockport.edu/s/1549/rd17/home.aspx>

The Biology Faculty

Featured Biology Graduates - Undergraduate Student

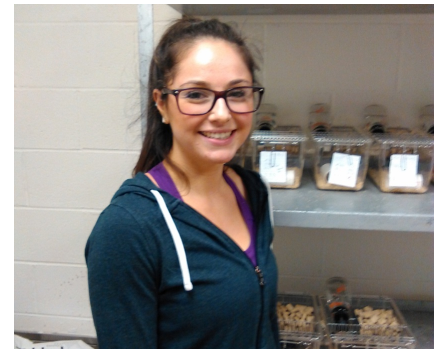
Gabriela M Mercurio (B.S. '18)

As a senior at Brockport, it is remarkable to see what an integral part the biology department has played in my academic and personal growth. Under the careful guidance of dedicated faculty, I have learned how to be a scientist and feel well prepared to further pursue my studies in graduate school and one-day medical school. Not only has the biology department developed me into a better student, it has helped shaped me as a person. Participating in research has been the cherry on top of my academic journey with Brockport biology.

Undergraduate research has cultivated me as student by exposing me to a non-classroom learning environment, allowing me to exercise my brain to it's fullest potential. In Dr. Ortega's lab, we are currently analyzing the effects magnesium citrate on magnesium

metabolism of mice. I am excited to present our findings at the Rochester Academy of Sciences annual meeting and looking forward to continued research on this topic. As a result of working in the lab, I have not only grown as a student but I have been provided a piece towards building myself into a qualified medical school applicant. I feel very fortunate to have been afforded the opportunity to take part in Dr. Ortega's research and my time in his lab has been invaluable.

I am currently in the process of applying to Biology and Biomedical Science masters programs. Brockport has given me the tools necessary to approach graduate school with confidence and assurance that I will thrive. From graduate school, I plan to matriculate into medical school and I feel that Brockport was well equipped me for this journey as well. Like any student, I



hit some road bumps along the way, but being a part of this program has given me the motivation to overcome any obstacle. I feel privileged to be earning my degree in Biology from Brockport.

My number one piece of advice for current and future students is a little unconventional: learn to love learning. The faculty at Brockport are committed to fostering a rich learning environment and provide everything necessary to succeed, you are lucky to be a part of that so take advantage!

Featured Biology Graduates - Graduate Student

Henry D Ophardt (B.S. '15 , M.S. '18)

For as long as I can remember I've had a penchant for scientific inquiry. As a child, I received a youth science kit, soon thereafter put to good use following the untimely passing of our family goldfish. Utilizing the cheap plastic microscope and scalpel, I performed a necropsy in an attempt to find out what happened. While I deemed the results inconclusive, the experience was one of many that fueled my love of science, particularly biology.

Several years later I was fortunate enough to attend a high school that offered a medical laboratory technician class my junior year. We provided our own samples for urinalysis and analyzed pigs' blood. The flimsy microscope of my youth was replaced with a more advanced model, and the class provided my first experience with a

spectrophotometer. For me, biology was where it was at!

Following high school, I passed on college, opting instead "take a year off" and move out of the house at age 18. I failed to realize at the time that I was squandering opportunity and privilege afforded to me, and ultimately embarked on a career in retail. While not a life of science, this path ultimately led me to meet my wife with whom we share two awesome daughters.

Ultimately, a decade after high school it was the birth of my first daughter that prompted me to go back to school; I wanted to do something more substantial with my life. Following my undergraduate studies at Monroe Community College and the Rochester Institute of Technology, I landed at Brockport to take on a Master's degree. Researching GPCR signaling in adipocytes through Dr. Cook's lab has helped prepare me for a bright future in



the biological sciences; her patience and guidance have been invaluable. My many positive experiences here have included a graduate assistantship which has helped further my personal and intellectual growth.

The path we take through life often presents unforeseen turns and difficulties, as mine certainly has. However, it is often these experiences that are not planned for that have the greatest potential to ultimately shape us personally.

Department Achievements & Faculty Updates



The Department of Biology Welcomes Its Newest Member!

Sarah Bolton, M.S. joined us last summer as a Lab Coordinator for the Anatomy & Physiology courses (BIO221, BIO321 and BIO322). She obtained her B.S. and M.S. at John Carroll University, and has considerable experience teaching A&P courses at John Carroll University and Cuyahoga Community College.



Dr. Laurie B. Cook welcomes new student research teams in her lab: **Ilesha Delesline** and **Kelly Anderson** are researching the efficiency of plasmid transfection by a new electroporator for eukaryotic cells compared to chemical transfection; **Bianca Camillaci** and **Lindsay Zink** are following up on some preliminary data from **Henry Ophardt** showing Vitamin D Receptor gene expression is downregulated by MCH in pre-adipocytes; **Tameciah Browne** and **Katie Courtney** are busy doing Western Blots on sucrose gradient fractions to prove we have isolated primary cilia from cells; and **Jordan Johnson** and **Clarissa Steier** are piloting scratch-wound assays in preparation for some experiments

that will investigate the signaling pathways responsible for regulating MCH-mediated actin dynamics in pre-adipocytes. **Ilesha** received a summer research stipend to work in the lab during June and July and is presenting a poster at the Summer Undergraduate Research Program fall poster session this October. Returning students **Henry Ophardt** and **Tameciah Browne** are actively writing up their final thesis/project and are on the job market! Congratulations to **Tameciah** for being awarded the Minority Affairs Committee Travel Award to present her work at the International ASCB meeting in Philadelphia this December.



Dr. Adam Rich Systems Physiology has done a great job this year examining a CRISPR-generated transgenic zebrafish. Our goal is to determine if *Ano1* is knocked out, as would be predicted by the genomic modification. The short answer is NO. This perplexing result seems common, science rarely seems to follow the script!

The lab is also doing well. I am absolutely amazed at the success of research students! 3 students that graduated last year. Although **Max Denora** failed to finish his He-Man breakfast in West Virginia he is loving Pharmacy school. **Clayton Brady** is working hard and enjoying medical school in Buffalo. **Nikole Van Wie** organized a fantastic Saturday of Service for Brockport and will be reporting in next fall during her first year of medical school at the Lake Erie College of Osteopathic Medicine!

Current lab members are thriving. **Ian Shannon** is now a working person and is about to finish his MS thesis, and **Meghan Denny** was just awarded the Distinguished Professor award to fund her MS thesis experiments. **Ryan Peters** spent his first semester learning about the lab and is currently struggling to contain his enthusiasm!

Undergraduate lab members are doing great. **Casey Attenburger** will attend Palmer Chiropractic in Florida next fall. **Jon Sleeper** is interviewing at

Department Achievements & Faculty Updates

medical schools. **Bailey Majtyka** is writing his Honor's thesis. **Brian Smith** and **Claire Makowski**, new to the lab, are still developing projects to sink their teeth into!

Finally, be sure to congratulate **Ashlee Wills**, MS student, because she is having a BABY BOY sometime around March 16!



Dr. Rongkun Shen lab's research is focusing on gene expression regulation using bioinformatics approaches. **Lucas Galbier** graduated with honor in May 2017, who had been working on "microRNA target prediction using machine learning and profiles". He also presented in both SURC and RAS of 2017. **Peter Giangrosso** identified a list of genes that were alternatively spliced genes during adipocyte differentiation in RNA-Seq data from Dr. Cook's lab. **Rachel Soeder** determined multiple long non-coding RNAs (lncRNAs) from RNA-Seq data (also collaboration with Dr. Cook). **Kalila Elihi** joined the lab this Fall 2017 to work on her MS degree. The lab welcomes another graduate student, **Neslihan Ari**, in the Spring 2018.



Dr. Bernardo Ortega lab's continued its research on metabolism of dietary magnesium. The lab recently published a research article entitled "Antibody mediated inhibition of EGFR reduces

phosphate excretion and induces hyperphosphatemia and mild hypomagnesemia in mice" in the journal *"Physiological Reports"*. This work was co-authored by students **Jason Dey**, **Allison Gardella**, **Jacob Proaño** and **Deanna Vaneerde**. **Jason** graduated a year ago and is currently in the School of Pharmacy and Pharmaceutical Sciences at the University of Buffalo. **Allison** graduated in the spring of 2017. **Deanna** is pursuing her B.S. in Medical Technology and is currently doing her internship at Rochester

General Hospital. This Fall the lab welcomed undergraduate students **Tricia Cooke**, **Taylor Thompson**, **Gabriela Mercurio**, **Conner Kobus** and **Christopher Carlson**. In collaboration with Dr. Pelletier's lab, we are already making great progress in understanding the effect that different magnesium supplements have on magnesium metabolism and composition of the intestinal microbiome of mice.



Dr. Stuart Tsubota: **Carmelina Derrico** is writing her Master's thesis and hopefully will be finished by May, 2018. **Lily Southivongnorath** and **Amber Voyer** have continued working in the lab.

They both received Summer Undergraduate Research Program fellowships to work during the summer 2017. They presented posters on their work at the SURP Fall Poster Session and at the 44th Annual Fall Scientific Paper Session of the Rochester Academy of Science, where **Stuart** also gave an oral presentation entitled, Studying the Human Cancer Gene, ERH, Within the Fruit Fly, *Drosophila Melanogaster*. For her presentation at the SURP poster session, **Lily** received the top honors for presenters. **Stuart** was also awarded the Faculty Mentor Award for the summer program. The lab continues to work on the *Drosophila* enhancer of rudimentary gene, but has expanded its scope to work on the human gene, which has a cancer-promoting activity. As part of this new direction, Stuart, along with Rongkun Shen, just submitted an NIH grant proposal.

Biology Offers a Combined B.S. Plus M.S. Degree in 5 Years

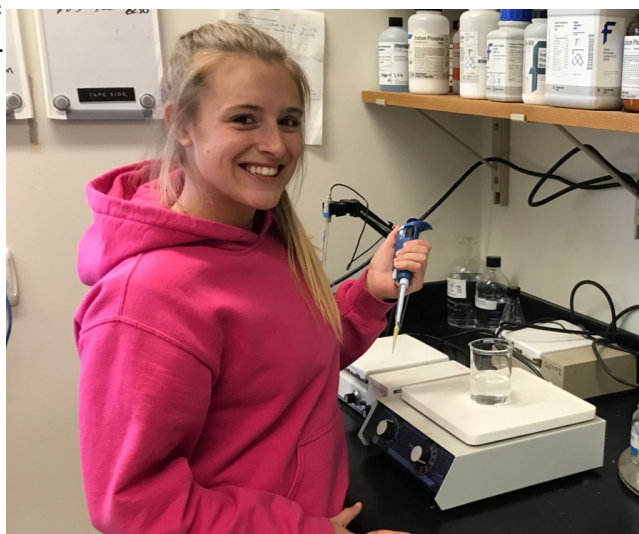
In the Spring semester of your Junior Year, you are eligible to apply for this new opportunity. If you are considering graduate work, we offer well-qualified students with a 3.25 GPA or higher the chance to get an accelerated Masters degree in one year rather than the usual two years. If you are interested, please contact Dr. Laurie Cook, 3+2 Program Coordinator.

A Word from the President of the Biology Honors Club

The honors biology club has been on the move this semester, as well as last spring, to try new things and expand our horizons. In the spring, a group of students joined by Dr. Laurie Cook visited Roswell, an institute for cancer research in Buffalo. There we were given a personal tour and many insights into the wonderful center and all of the new technology and practices which enlightened several students and showed that research can be fun and easily applied. We hope to find another research center, perhaps University of Buffalo, to visit in the spring this coming year.

This current semester, we reached out to a group called Freedom Guide Dogs. This group helps to place seeing-eye dogs with blind persons who need help in their daily lives. We had the group attend a meeting in order to give us information, then we tabled to raise money for the group and were successful in making a significant contribution to the group. Several of us students traveled to a bowling event held in Spencerport in October and were able to hand them the money and see the community in action for this cause.

On a biology front, we had Dr. Rongkun Shen present his research for the group at a meeting (we also had awesome food: wings, pizza logs and



uit!) in order to show students a lab here at the college that needs more students. Dr. Shen explained how he came to Brockport and the many projects he works on or collaborates on which left students inspired and hopefully will allow him to expand his projects with able-bodied hands. We will continue to work hard the rest of the semester and continue to expand the group's horizons as we come into the Spring of 2018.

Casey Attenberger
President of Biology Honors

Student Successes and Alumni Updates

- **Vince Badali** (B.S. 2000) has been a dentist in Fairport since 2015.
- **Mac Cerasaro** (B.S. 2011) is finishing up an internal medicine residency in Ventura, CA and is looking forward to a Nephrology Fellowship
- **Amber Altrieth** (B.S. 2015) is in her second year of graduate school at U Albany working on a PhD in Molecular, Cellular and Developmental Neural Biology
- **Laura Shum** (B.S. 2010) is preparing for her PhD Thesis Defense at the University of Rochester Medical Center.



Bryan, Colin, Scott and Makoto with Laurie Cook at the Buffalo Happy Hour with Jimmy Z at the Flying Bison Brewing Company